IN THE CLAIMS

1. (previously presented) A membraneless exchange device for extracting components from a sample fluid, said device comprising:

first, second and third inlet channels, said second inlet channel for receiving the sample fluid;

first, second and third exit channels, said second exit channel for conducting the sample fluid to exit the device;

a microfluidic extraction channel connected to the first, second and third inlet channels and the first, second and third exit channels, wherein laminar flows of a first extractor fluid, the sample fluid, and a second extractor fluid are established inside the extraction channel and wherein sheathing of the sample fluid by the first and second extractor fluids substantially limits contact between the sample fluid and the surfaces of the extraction channel; and

a recycle loop including a secondary processor, wherein the recycle loop receives a used extractor fluid including the first and second extractor fluids exiting the extraction channel through the first and third exit channels, respectively, the secondary processor generates a processed extractor fluid by removing components from at least a portion of the used extractor fluid and the recycle loop returns at least a portion of the processed extractor fluid to the extraction channel through the first and third inlet channels.

2. (original) The device of claim 1, wherein at least 90% of the sample fluid is sheathed by the first and second extractor fluids.

3. (original) The device of claim 2, wherein at least 95% of the sample fluid is sheathed by the first and second extractor fluids.

4. (original) The device of claim 1, wherein at least a portion of the sample fluid exits the device with the first extractor fluid through the first exit channel.

5. (original) The device of claim 1, wherein advective transport of molecules within said extraction channel is substantially nonexistent.

6. (original) The device of claim 1, wherein the composition of the first extractor fluid is substantially the same as the composition of the second extractor fluid.

7. (original) The device of claim 1, wherein the sample fluid flow is between the first and second extractor fluid flows.

8-9. (canceled)

10. (original) The device of claim 1, wherein the sample fluid is blood fluid.

11. (original) The device of claim 10, wherein the components extracted from the sample fluid are non-cellular components of the blood fluid.

12. (original) The device of claim 1, wherein a first pump is used for controlling the flow of extractor fluid in the extraction channel and wherein a second pump is used for controlling the flow of sample fluid in the extraction channel.

13. (original) The device of claim 12, wherein the first pump is an injection pump that controls the flow of extractor fluid into the extraction channel and wherein the device further comprises a withdrawal pump that controls the flow of extractor fluid out of the extraction channel.

14. (original) The device of claim 1, wherein a source of extractor fluid is connected to said first inlet channel and wherein a source of sample fluid connected to said second inlet channel.

15. (original) The device of claim 14, wherein the sample fluid is blood fluid and the source of sample fluid is a human being.

16. (original) The device of claim 1, wherein the extraction channel has a height of less than 600 μm.

17. (original) The device of claim 1, wherein the extraction channel has a width-to-height ratio of at least ten.

18. (canceled)

19. (previously presented) The device of claim 1, wherein said secondary processor is a membrane device.

20. (previously presented) The device of claim 1, wherein said secondary processor is a sorption device.

21-43 (withdrawn)

44. (previously presented) The device of claim 1, further comprising:

a first diverter formed from a portion of the first exit channel and a portion of the second exit channel; and

a second diverter formed from a portion of the second exit channel and a portion of the third exit channel.

45. (previously presented) The device of claim 44, wherein a first interface that is formed between the first extractor fluid flow and the sample fluid flow is aligned with at least a portion of the first diverter, and wherein a second interface that is formed between the second extractor fluid flow and the sample fluid flow is aligned with at least a portion of the second diverter.

46. (previously presented) A membraneless exchange device for extracting components from a sample fluid, said device comprising:

a microfluidic extraction channel including an input end and an output end;

first, second and third inlet channels disposed on the input end of the extraction channel, said first inlet channel for receiving a first extractor fluid, said second inlet channel for receiving the sample fluid and said third inlet channel for receiving a second extractor fluid;

first, second and third exit channels disposed on the output end of the extraction channel, said first exit channel for conducting the first extractor fluid out of the extraction channel after passing through the extraction channel, said second exit channel for conducting the sample fluid out of the extraction channel after passing through the extraction channel and said third exit channel for conducting the second extractor fluid out of the extraction channel after passing through the extraction channel;

a first diverter formed from a portion of the first exit channel and a portion of the second exit channel; and

a second diverter formed from a portion of the second exit channel and a portion of the third exit channel;

wherein laminar flows of the first extractor fluid, the sample fluid, and the second extractor fluid are established inside the extraction channel and wherein sheathing of the sample fluid by the first and second extractor fluids substantially limits contact between the sample fluid and the surfaces of the extraction channel.

47. (previously presented) The device of claim 46, wherein a first interface that is formed between the first extractor fluid flow and the sample fluid flow is aligned with at least a portion

of the first diverter, and wherein a second interface that is formed between the second extractor fluid flow and the sample fluid flow is aligned with at least a portion of the second diverter.